TANTALUM

(Data in metric tons of tantalum content, unless otherwise noted)

<u>Domestic Production and Use</u>: There has been no significant domestic tantalum-mining industry since 1959. Domestic tantalum resources are of low grade, some mineralogically complex, and most are not commercially recoverable. Most metal, alloys, and compounds were produced by three companies; tantalum units were obtained from imported concentrates and metal, and from foreign and domestic scrap. Tantalum was consumed mostly in the form of metal powder, ingot, fabricated forms, compounds, and alloys. The major end use for tantalum was in the production of electronic components, approximately 60% of use, mainly in tantalum capacitors. The value of tantalum consumed in 1999 was estimated at around \$180 million.

Salient Statistics—United States:	<u> 1995</u>	<u> 1996</u>	<u> 1997</u>	<u> 1998</u>	<u>1999</u> °
Production, mine					
Imports for consumption, concentrate, tin slags, and other ¹	NA	NA	NA	NA	NA
Exports, concentrate, metal, alloys,					
waste, and scrap ^e	220	290	340	440	430
Government stockpile releases ^{e 2}		(70)	20	220	NA
Consumption: Reported, raw material	NA	NA	NA	NA	NA
Apparent	515	490	550	525	550
Price, tantalite, dollars per pound ³	26.98	27.75	28.76	33.80	34.00
Stocks, industry, processor, yearend	NA	NA	NA	NA	NA
Employment	NA	NA	NA	NA	NA
Net import reliance⁴ as a percent of					
apparent consumption	80	80	80	80	80

Recycling: Combined prompt industrial and obsolete scrap consumed represented about 20% of apparent consumption.

Import Sources (1995-98): Australia, 34%; Thailand, 15%; China, 10%; Germany, 7%; and other, 34%.

Tariff: Item	Number	Normal Trade Relation 12/31/99	
Synthetic tantalum-columbium			
concentrates	2615.90.3000	Free.	
Tantalum ores and concentrates	2615.90.6060	Free.	
Tantalum oxide	2825.90.9000	3.7% ad val.	
Potassium fluotantalate	2826.90.0000	3.1% ad val.	
Tantalum, unwrought:			
Waste and scrap	8103.10.3000	Free.	
Powders	8103.10.6030	2.5% ad val.	
Alloys and metal	8103.10.6090	2.5% ad val.	
Tantalum, wrought	8103.90.0000	4.4% ad val.	

Depletion Allowance: 23% (Domestic), 15% (Foreign).

Government Stockpile: For fiscal year (FY) 1999, ending September 30, 1999, the Defense National Stockpile Center (DNSC) sold about 2 tons of tantalum contained in tantalum carbide powder valued at about \$260,000, about 11 tons of tantalum capacitor-grade metal powder valued at about \$1.9 million, about 12 tons of tantalum vacuum-grade metal ingots valued at about \$2.2 million, about 87 tons of tantalum contained in tantalum minerals valued at about \$11 million, and about 9 tons of tantalum contained in tantalum oxide valued at about \$1.23 million from the National Defense Stockpile (NDS). From April 1997 through September 1999, the DNSC sold a total of about 4 tons of tantalum contained in tantalum carbide powder valued at about \$524,000, about 11 tons of tantalum capacitor-grade metal powder valued at about \$1.9 million, about 12 tons of tantalum vacuum-grade metal ingots valued at about \$2.2 million, about 132 tons of tantalum contained in tantalum minerals valued at about \$17.2 million, and about 37 tons of tantalum contained in tantalum oxide valued at about \$4.9 million from the NDS. The DNSC also proposed maximum disposal limits in FY 2000 of about 2 tons of tantalum contained in tantalum carbide powder, about 23 tons of tantalum capacitor-grade metal powder, about 18 tons of tantalum vacuum-grade metal ingots, about 91 tons of tantalum contained in tantalum oxide. The NDS uncommitted inventories shown below include a small quantity in nonstockpile-grade tantalum capacitor-grade metal powder and about 453 tons of tantalum contained in nonstockpile-grade minerals.

TANTALUM

Stockpile Status-9-30-995

Material	Uncommitted inventory	Committed inventory	Authorized for disposal	Disposal plan FY 1999	Disposals FY 1999
Tantalum:	•	•	•		
Carbide powder	9	_	9	2	2
Metal:					
Capacitor-grade powder	62	2	45	11	11
Ingots	100	4	45	11	12
Minerals	1,000	42	1,000	91	87
Oxide	46		46	9	9

Events, Trends, and Issues: Total consumption of tantalum in 1999 increased, owing to continued strong demand for tantalum capacitors in products such as portable telephones, pagers, personal computers, and automotive electronics. U.S. sales of tantalum capacitors for the first one-half year increased by more than 15% compared with that of the similar period in 1998. For the same period, tantalum imports increased. Imports for consumption of tantalum mineral concentrates rose slightly, with Australia supplying about 60% of quantity and value. Exports increased, with Hong Kong, China, Brazil, and Israel the major recipients of the tantalum materials. In early November, spot prices for tantalum ore (per pound of contained tantalum pentoxide), in three published sources, were \$33 to \$35, \$28 to \$31.50, and \$45. The most recent industry source (August 1999) on tantalum prices indicated that the average selling prices for some tantalum products (per pound of contained tantalum) were as follows: capacitor-grade powder, \$135 to \$260; capacitor wire, \$180 to \$270; vacuum-grade metal for superalloys, \$75 to \$100; and sheet, \$100 to \$150. It is estimated that in 2000 domestic mine production will be zero, and U.S. apparent consumption will be less than 600 tons.

World Mine Production, Reserves, and Reserve Base:

	Mine production ⁶		Reserves ⁷	Reserve base ⁷
	<u>1998</u>	<u>1999</u> °		
United States	_	_	_	Negligible
Australia	330	350	7,000	16,000
Brazil	60	60	NA	3,000
Canada	61	60	3,000	5,000
Congo (Kinshasa) ⁸	_	_	1,800	4,500
Nigeria	3	3	NA	7,000
Other countries ⁹			<u>NA</u>	<u>NA</u>
World total (may be rounded)	454	473	12,000	36,000

<u>World Resources</u>: Most of the world's resources of tantalum occur outside the United States. On a worldwide basis, identified resources of tantalum are considered adequate to meet projected needs. These resources are largely in Australia, Brazil, Canada, Congo (Kinshasa), and Nigeria. The United States has about 1,500 tons of tantalum resources in identified deposits, all of which were considered uneconomic at 1999 prices.

<u>Substitutes</u>: The following materials can be substituted for tantalum, but usually with less effectiveness: columbium in superalloys and carbides; aluminum and ceramics in electronic capacitors; columbium, glass, platinum, titanium, and zirconium in corrosion-resistant equipment; and columbium, hafnium, iridium, molybdenum, rhenium, and tungsten in high-temperature applications.

^eEstimated. NA Not available.

¹Metal, alloys, and synthetic concentrates; exclusive of waste and scrap.

²Net quantity including effect of upgrading program. Data in parentheses denote increases in inventory.

³Average value, contained tantalum pentoxides, 60% basis.

⁴Defined as imports - exports + adjustments for Government and industry stock changes.

⁵See Appendix B for definitions.

⁶Excludes production of tantalum contained in tin slags.

⁷See Appendix C for definitions.

⁸Formerly Zaire.

⁹Bolivia, China, Russia, and Zambia also produce, or are believed to produce tantalum, but available information is inadequate to make reliable estimates of output levels.